Amendments to the Drawings:

The attached sheet of drawings includes changes to Figures 5, 10, 11, and 15 to include previously omitted SEQ ID NO. identifiers. In addition, in Figure 5, the amino acid residue at position 9 of HP-gp1 has been amended from an "E" to an "F." Support for this amendment can be found in Figure 10. No new matter has been added by way of these amendments.

Attachment: Replacement Sheets (**Attachment A**)
Annotated Sheet Showing Changes (**Attachment B**)

REMARKS/ARGUMENTS

I. Election/Restriction:

Applicant would like to thank the Examiner for revising the Restriction Requirement of December 8, 2004 to include claims from both Groups I and II for present examination.

Accordingly, claims 10-17, 19, 20, 23, 24, 26, 27, 29-34, 36, 39, 40, and 75-78 are pending and under consideration in the application. Claims 42-50, 52, 55, 56, 58-69, and 72 have been withdrawn as being drawn to a non-elected invention without prejudice for examination at a later date.

II. Amendments to the Specification:

The specification has been amended to reinsert the reference to Cross-Related Applications that was inadvertently omitted at the time of filing a substitute specification. The specification has also been amended to correct a few minor clerical/typographical errors. Finally, a revised Abstract has been provided that conforms to the requirements set forth in MPEP § 608.01(b).

No new matter has been added by way of the instant amendments to the specification.

III. Sequence Compliance:

Figures 5, 10, 11 and 15 have been amended in accordance with the Examiner's suggestion to be compliant with 37 C.F.R. § 1.821(a)(1) and (a)(2).

IV. Rejection under 35 U.S.C. § 112, first paragraph:

Claims 10-17, 19, 20, 23, 24, 26, 27, 29-34, 36, 39, 40, and 75-78 were rejected under 35 U.S.C. § 112, first paragraph, for allegedly failing to comply with the written description requirement (*see*, Office Action pages 5-6). Specifically, the Office Action opines that the specification does not provide any literal support for the recitation of "wherein the polypeptide is not an antibody," and further purported that the recitation of a negative limitation excluding

antibodies from the scope encompassing polypeptides was not supported by the specification since specific guidance for the exclusion of antibodies were not taught by the specification.

Applicant respectfully traverses this rejection.

The courts have held that in rejecting a claim under the first paragraph of 35 U.S.C. § 112 for lack of adequate descriptive support, it is incumbent upon the examiner to establish that the originally filed disclosure would not have reasonably conveyed to one having ordinary skill in the art that an applicant had possession of claimed subject matter. *Wang Laboratories, Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993). Furthermore, adequate description under the first paragraph of 35 U.S.C. § 112 does not require *literal* support for the claimed invention. *See,* for example, *In re Herschler*, 591 F.2d 693, 200 USPQ 711 (CCPA 1979); *In re Edwards*, 568 F.2d 1349, 196 USPQ 465 (CCPA 1978); *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). Rather, it is sufficient if the originally filed disclosure would have conveyed to one having ordinary skill in the art that an applicant had possession of the concept of what is claimed. *In re Anderson*, 471 F.2d 1237, 176 USPQ 331 (CCPA 1973).

The Office Action stated that "the specification does not appear to provide any literal support for the recitation of "wherein the polypeptide is not an antibody." Clearly, the observation of a lack of literal support does not, in and of itself, establish a *prima facie* case for lack of adequate descriptive support under the first paragraph of 35 U.S.C. § 112. *In re Herschler, supra; In re Edwards, supra; In re Wertheim, supra.*

Although the recitation "wherein the polypeptide is not an antibody," is not literally disclosed in the application, Applicant respectfully asserts that the originally filed disclosure conveys to one having ordinary skill in the art that Applicant had possession of the claimed invention when he filed the present application. Specifically, the detailed description of the invention clearly indicates that Applicant did not envisage antibody-antigen interactions as part of his claimed invention. Although antibodies are explicitly discussed throughout the application (*see,* page 12, lines 3-5; page 19, lines 14-20; page 20, lines 12-19; and page 27, lines 24-27 of the originally filed application), they are discussed with respect to purifying proteins, and methods of raising antibodies to proteins identified by the present invention. If Applicant

intended to cover antibody-antigen interactions, clearly, he would have made specific reference to such interactions in the detailed description. However, nowhere in the application is there any intent to cover antibody-antigen interactions. Indeed, Applicant's specification implicitly clarifies this intended scope when it addresses one advance to the field provided by the invention. In particular, at page 27, lines 24-27 of the originally filed application, Applicant describes the recognition that cellular protein-protein interactions are facilitated by very short, but very high affinity peptide sequences that appear to be analogous to sequences that mediate antibody-antigen interactions. The skilled artisan would recognize that these statements implicitly remove antibody-antigen interactions from the scope of the claimed invention. In other words, Applicant's disclosure implicitly and/or inherently conveys that antibody-antigen interactions are not within the scope of his claims. The recitation of "wherein the polypeptide is not an antibody," is merely a clarification of this fact.

The predecessor court of the Federal Circuit held that it is for the inventor to decide what bounds of protection he will seek. *In re Saunders*, 444 F.2d 599, 607, 58 CCPA 1316, 1327, 170 USPQ 213, 220 (1971). In the instant application, by amending the claim to recite "wherein the polypeptide is not an antibody," Applicant merely clarified what is evident in the disclosure: that antibody-antigen interactions were not envisaged as part of the invention. To reject the currently pending claims because of this phrase would substantially eliminate the right of the Applicant to claim an otherwise patentable invention, merely because he did not expressly exclude antibody-antigen interactions in his disclosure.

For the foregoing reasons, Applicant respectfully requests reconsideration of this rejection and withdrawal of the same.

V. <u>Rejection under 35 U.S.C. § 102(b):</u>

Claims 10-16, 19, 23, 26, 27, 29-33, 39, and 75-78 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Miwa (EP 0 818467A2).

Applicant respectfully traverses this rejection.

According to MPEP § 2131, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Miwa does not anticipate Applicant's claimed invention because Miwa does not teach ***each and every limitation*** of Applicant's claimed invention. Specifically Miwa does not teach or suggest at least the following elements:

(i) "the set of overlapping peptides being covalently attached to a support," and

(ii) "contacting the support to which the overlapping peptides are covalently attached with a mixture of polypeptides" (*see*, independent claims 10 and 26, sections (a) and (b)).

Miwa provides no teaching or suggestion for using a "***mixture of polypeptides***," as recited in Applicant's independent claims. Miwa does not define his ligand to be a mixture of polypeptides.

Furthermore, Miwa merely suggests "immobilizing" or "placing" peptide segments on "suitable substances" (*see*, page 4, lines 14 and 18; and page 5, line 35). "Immobilizing" or "placing" peptide segments does not teach or suggest ***covalently*** attaching overlapping peptides to a support. Nowhere in Miwa is there a teaching or suggestion to ***covalently*** attach overlapping peptides to a support as required by Applicant's claims.

Because Miwa does not teach each and every element of Applicant's claimed invention, Miwa does not anticipate Applicant's claimed invention. Accordingly, Applicant respectfully requests that this rejection under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

VI. Rejections under 35 U.S.C. § 103(a):

(a) Claims 10-17, 23, 26, 27, 29-34, 39, and 75-78 were rejected under 35 U.S.C. § 103(a) as purportedly being unpatentable over Geysen (US 5,595,915), in view of Miwa (EP 0 818467A2).

Applicant respectfully traverses this rejection.

According to MPEP § 2143, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In the instant case, Applicant respectfully asserts that a *prima facie* case has not been presented because the Office Action has not provided adequate motivation to combine the cited references, and also because not all claim limitations are taught by the combination of references.

Specifically, the primary reference, Geysen, relates to a method of detecting the epitope(s) bound by an antibody. Miwa is directed to identifying an interaction site in a protein for a given ligand. The Office Action purports that there is a motivation to combine these references to arrive at Applicant's claimed invention because one of ordinary skill in the art at the time of the instant invention would consider substituting the antibodies of Geysen with a polypeptide ligand of Miwa.

According to MPEP § 2141.03, if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is **no** suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) (emphasis added). If, as the Office Action urges, Geysen is modified by Miwa to replace antibodies with a polypeptide ligand, Geysen would no longer be satisfactory for its intended purpose. As indicated above, Geysen is directed to identifying epitopes bound by antibodies. By replacing the antibodies of Geysen with another polypeptide ligand of Miwa, this reference would no longer be useful for its intended purpose, *i.e.*, to identify antigenic epitopes. Because the modification proposed by the Office Action would render Geysen unsatisfactory for its intended purpose, there is simply no motivation to combine Geysen with Miwa as suggested by the Office Action.

In addition, even if there were a suggestion to combine these references (which is denied), the combination does not teach all elements of Applicant's claimed invention. For example, the combination of Geysen and Miwa does not teach or suggest contacting overlapping peptides on a support with a mixture of polypeptides as required by Applicant's independent claims.

For the foregoing reasons, Applicant respectfully requests reconsideration of this rejection under 35 U.S.C. § 103(a) and withdrawal of the same.

(b) Claims 10-17, 20, 24, 26, 27, 29-34, 36, 40, and 75-78 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Georges *et al.* (*J. Biol. Chem.* **268(3)**:1792-98, 1993) in view of Miwa (EP 0 818467A2).

Applicant respectfully traverses this rejection.

Applicant respectfully asserts that a *prima facie* case has not been presented because the Office Action has not provided adequate motivation to combine the cited references, and also because not all claim limitations are taught by the combination of references.

Georges *et al.* is directed to identifying the epitope of the MRK-16 monoclonal antibody. As described above, Miwa is directed to identifying an interaction site in a protein for a given ligand.

The Office Action stated that it would have been obvious to one of ordinary skill in the art at the time of the instant invention to substitute other polypeptide ligands as taught by Miwa, for the antibodies taught by Georges *et al.* because Miwa specifically taught that different ligands can be used in his method.

Applicant asserts that there is no motivation to combine the cited documents because the modification proposed by the Office Action would render Georges *et al.* unsatisfactory for its intended purpose. Specifically, by modifying Georges to replace the MRK-16 monoclonal antibody with another ligand from Miwa, the Georges references would not be able to identify the epitope(s) on human P-glycoprotein that binds MRK-16. According to MPEP § 2141.03, if a proposed modification would render the prior art invention being modified unsatisfactory for

its intended purpose, then there is **no** suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) (emphasis added).

Furthermore, even if there were a motivation to combine Georges et al. with Miwa, the combination would not teach all of Applicant's claimed limitations. For example, the combination of Geysen and Miwa do not teach or suggest contacting overlapping peptides on a support with a mixture of polypeptides as required by Applicant's independent claims.

For the foregoing reasons, Applicant respectfully requests that this rejection under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

CONCLUSION

Claims 10-17, 19, 20, 23, 24, 26, 27, 29-34, 36, 39, 40, and 75-78 are pending in the instant application.

Applicant respectfully avers that all rejections of these claims have been overcome and that these claims are in condition for allowance.

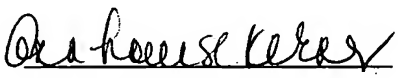
Applicants petition for a one-month extension of time to respond to the Office action. Please charge the requisite extension of time fess to Deposit Account No. 08-0219. No other fees are believed to be due in connection with this filing. However, if any fees are due, please charge any underpayments, or credit any overpayment- to our Deposit Account No. 08-0219.

If there are any questions regarding this matter, the Examiner is invited to call the undersigned at the telephone number indicated below.

Respectfully submitted,

WILMER CUTLER PICKERING HALE AND DORR LLP

Date: July 11, 2005



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ATTACHMENT A

Attached are the Replacement Sheets for Figures 5, 10, 11 and 15.

ATTACHMENT B

Attached are the Annotated Sheets Showing Changes for Figures 5, 10, 11 and 15.

Annotated Sheet Showing Changes

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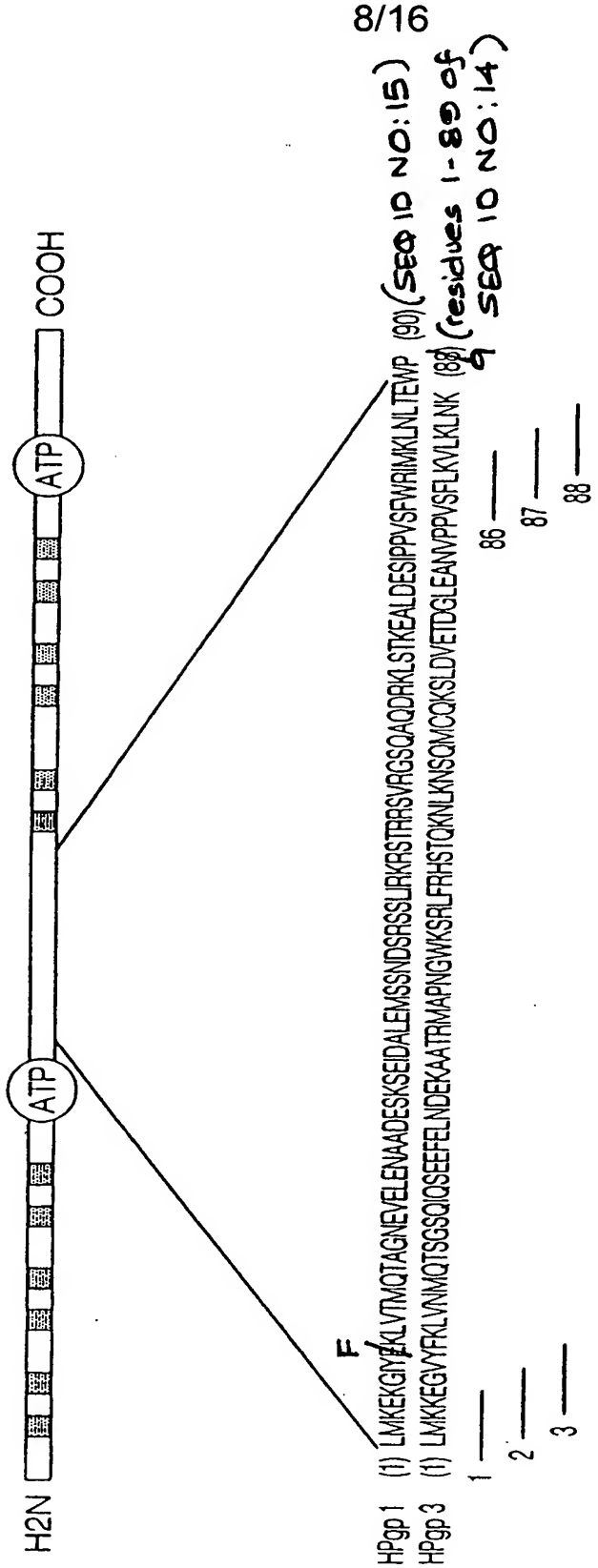

FIG. 5

Alignment Of Amino Acid Sequences Of Human P-gp3 And P-gp1 Linker Domains

```
618 LMKKEGVYFKLVNMQTSGSQIQSEEF--ELNDEKAATRMAPNGWKSRLFR-HSTQKNLKNSQM 677  P-gp3
    LMK++G+YFKLV MQT+G++++ E    E   E  A  M+ N  +S L R  ST+++++
615 LMKEKGIYFKLVTMQTAGNEVELENAADESKSEIDALEMSSNDSRSSLIRKRSTRRSVRGSQA 677  P-gp1

678 CQKSLDVETDGLEANVPPVSFLKVLKLNKTEWP 710    P-gp3 (SEQ ID NO:14)
      + L  + + L+ ++PPVSF +++KLN TEWP
678 QDRKLSTK-EALDESIPPVSFWRIMKLNLTEWP 709    P-gp1 (SEQ ID NO:15)
```

FIG. 10

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Annotated Sheet Showing Changes

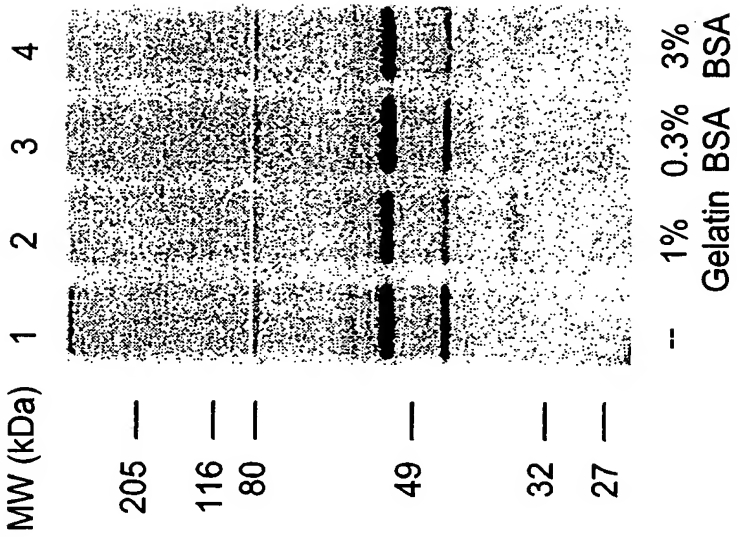

MW (kDa)
205
116
80
49
32
27
1
2
3
4
P57
P41
-
1%
Gelatin
0.3%
BSA
3%
BSA

FIG. 12

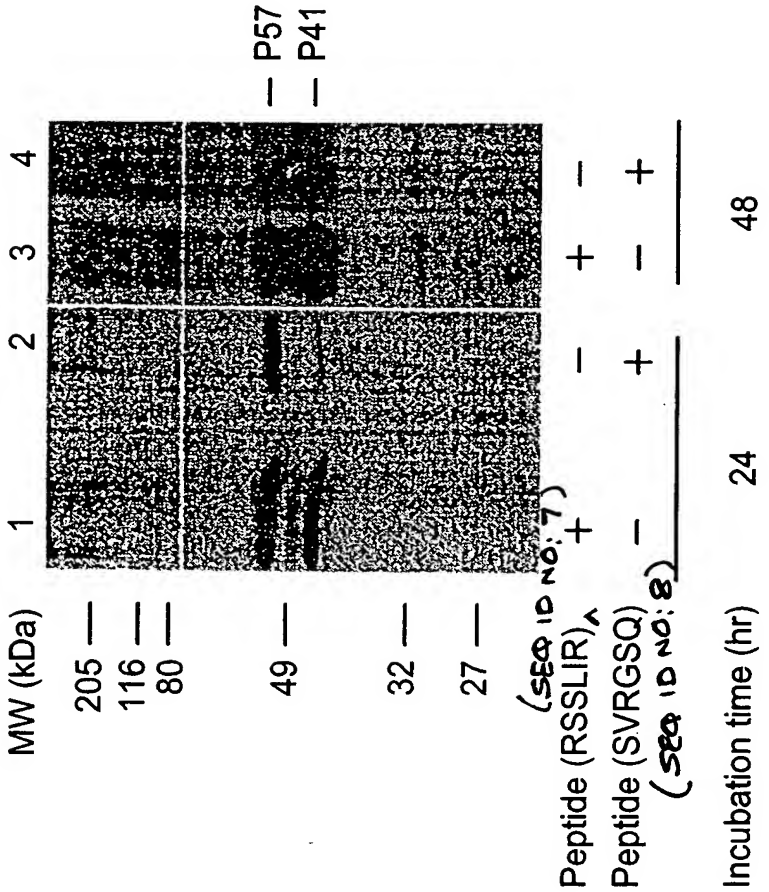
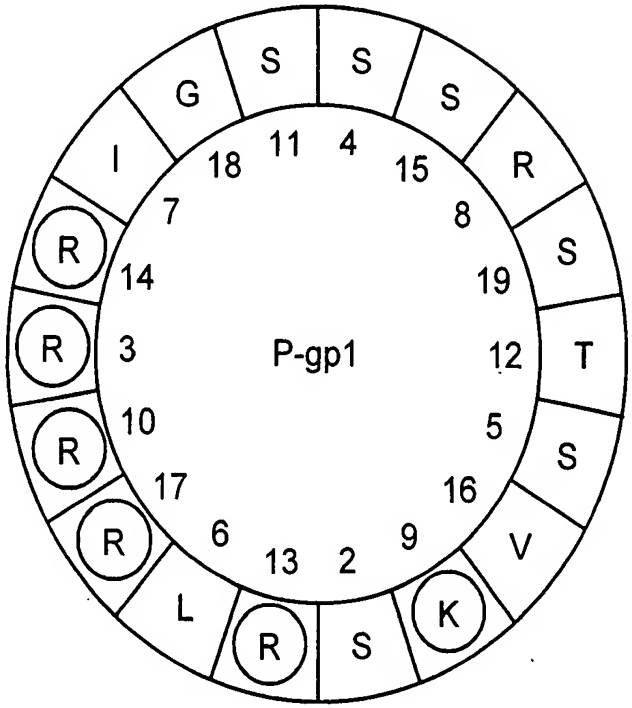

MW (kDa)
205
116
80
49
32
27
1
2
3
4
P57
P41
Peptide (RSSLIR)
(SEQ ID NO: 7)
Peptide (SVRGSQ)
(SEQ ID NO: 8)
Incubation time (hr)
24
48

FIG. 11

HELICAL WHEEL PRESENTATION

SRSSLIRKRSTRRSVRGS (SEQ ID NO: 12)



NGWKSRLFRHSTQKNLK (SEQ ID NO: 13)

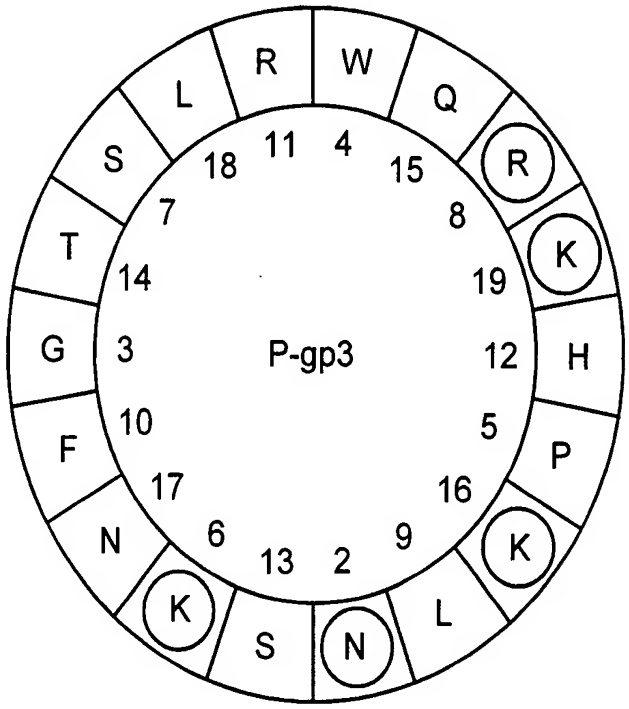


FIG. 15

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Annotated Sheet Showing Changes